



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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May 22, 2019

Ms. Sarah Rolfes  
United States Environmental Protection Agency  
Superfund Division, Mail Code SR-6J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

Re: Remedial Investigation Report, Rev.1  
The Peoples Gas Light and Coke Company  
Division Street Station  
Willow Street Station  
North Station  
Former Manufactured Gas Plants  
Chicago, Illinois

0316005885 – Cook County  
Chicago/Peoples Gas – Division Street  
Station  
Superfund/Technical File

0316075229 – Cook County  
Chicago/Peoples Gas – Willow Street  
Station  
Superfund/Technical File

0316085749 – Cook County  
Chicago/Peoples Gas – North Station  
Superfund/Technical File

Dear Ms. Rolfes:

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the *Remedial Investigation Report, Revision 1, The Peoples Gas Light and Coke Company, North Branch of the Chicago River Willow Street Station, Division Street Station, and North Station Operable Unit 2, North Branch Site, Chicago, Illinois*. The report was prepared by O'Brien and Gere Engineers, Inc., part of Ramboll on behalf of WEC Business Services, LLC for the U.S. Environmental Protection Agency (US EPA). It is dated April 12, 2019 and was received by Illinois EPA on April 18, 2019.

Illinois EPA provides the following comments:

## General Comments – Baseline Risk Assessment

1. Construction workers are generally not assumed to move randomly throughout a larger exposure area. Rather, their work is often restricted to a smaller area such as a trench or foundation. As a result, it is not appropriate to calculate an exposure point concentration (EPC) for construction workers as a 95 percent upper confidence limit on the mean (95 UCL). Therefore, Revision 1 should be revised to use only maximum detected concentrations as the soil EPC for construction worker exposure scenarios. This will impact the evaluation of lead in sediment because the maximum detected concentration of lead exceeds the screening level of 700 milligrams per kilogram (mg/kg).
2. Revision 1 identifies human health chemicals of concern (COC) as those chemicals contributing risks greater than  $1\text{E-}04$  (the upper end of EPA's risk range [ $1\text{E-}06$  to  $1\text{E-}04$ ]) and chemicals contributing noncarcinogenic hazards greater than 1 (EPA 1990). This definition is unacceptable. As noted in the text, risk managers may decide that a risk level less than  $1\text{E-}04$  is unacceptable "due to site-specific reasons and that remedial action is warranted." Therefore, to inform risk managers, Revision 1 should be revised to define human health COCs as chemicals contributing risks  $\geq 1\text{E-}06$  (the lower end of EPA's risk range and the NCPs "point of departure") and/or a noncarcinogenic hazard greater than 1. All receptor- and exposure area-specific risk discussions should identify medium-specific COCs based on the revised criteria stated above.
3. Revision 1 discusses the current use of the river and adjacent lands in selecting potentially complete exposure scenarios to evaluate in Revision 1. It appears that Revision 1 assumes that uses of the river and adjacent land will remain the same (or largely similar) in the future; however, this is not clearly stated. Revision 1 should be revised to clearly state the assumption that current land use in and along the river will remain largely the same in the future (for example, the river will continue to be used for recreational purposes).
4. Seven carcinogenic polynuclear aromatic hydrocarbons (cPAH) – benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene – are all assumed to act by a similar mechanism. In fact, the cumulative impact of these seven cPAHs is often quantified as benzo(a)pyrene equivalents (BaPE). Illinois' "Tiered Approach to Corrective Action Objectives" (TACO) acknowledges the need to evaluate similar-acting chemicals (Illinois Pollution Control Board [IPCB] 2013). Therefore, Revision 1 should be revised to include all detected cPAHs as COCs if at least one individual cPAH exceeds its screening level.



5. Revision 1 acknowledges the fact that calculation of surface water-related risks via a ratio method using EPA’s tap water regional screening levels (RSL) “are likely orders of magnitude higher than the actual risks that would occur due to the limited exposure to surface water either receptor [recreational users and construction workers] would have.” This conclusion is not unreasonable but is unnecessarily vague. A comparison of values for key exposure parameters would produce a semi-quantitative analysis that would substantiate the stated conclusion. For example, the following differences in exposure parameter values were noted between a recreational user and a potable water user:

Receptor	Exposure Parameters		
	Ingestion Rate (Liters/day)	Surface Area (square centimeters)	Exposure Frequency (days/year)
Adult Resident <sup>1</sup>	2.5	19,652	350
Adult Recreational User <sup>2</sup>	0.071	6,000	10
Ratio	35	3.3	35

Notes:

1. Default tap water exposure assumptions (EPA 2018)
2. Default recreational water ingestion rate, assuming 1 hour of recreational activity each day; approximate surface area (head, hands, feet, and forearms, increased to account for rare full body exposure [falling into river]) (EPA 2011, 2018); best professional judgment on upper-bound estimate of number of recreational days on river near sites.

Therefore, for ingestion and dermal exposure pathways, it can be shown that the tap water RSL assumptions overestimate the recreational user assumptions by approximately two to three orders of magnitude:

- Ingestion –  $35 \text{ (IR)} \times 35 \text{ (EF)} = 1,225$  (three orders of magnitude)
- Dermal –  $3.3 \text{ (SA)} \times 35 \text{ (EF)} = 115$  (two orders of magnitude)

As a result, Revision 1 should be revised to include a similar semi-quantitative analysis to support the assertion that risks estimated using tap water assumptions “are likely orders of magnitude higher than the actual risks that would occur due to the limited exposure to surface water either receptor [recreational users and construction workers] would have.”

6. Revision 1 states that risk assessment was prepared consistent with the EPA approved Multi-Site Risk Assessment Framework (RAF) (Exponent, Inc. 2007). The RAF notes that the bioavailability of polycyclic aromatic hydrocarbons (PAHs) in sediments are influenced by the organic carbon content in the sediments. The RAF references U.S

Environmental Protection Agency guidance (EPA 2003) that provides a protocol to calculate an equilibrium partitioning sediment benchmark toxicity unit (ESB Sum-TU) for a sediment sample. Section 7.4 of the RAF states this guidance will be used to develop toxicity scores for each sediment sample. However, the ecological risk assessment used bulk PAH sediment data for screening purposes and did not calculate an ESB Sum-TU and use that data in the screening process as stated in the RAF. The ecological risk assessment used a similar protocol (EPA 2008) to calculate ESB Sum-TUs for petroleum volatile organics (benzene, ethylbenzene, toluene, and xylenes) in sediment samples. The risk assessment did not provide an explanation why the RAF was not followed and should be revised to include the assessment of ESB-Sum TUs for the sediment samples in the ambient locations and each of the study locations of OU2 or text should be provided to justify the exclusion of this analysis.

### **Specific Comments – Baseline Risk Assessment**

1. **Section 2, Page 4, Paragraph 2.** The first sentence states that Figure 1 (the refined site-specific conceptual site model [CSM]) displays “potential transport mechanisms.” Figure 1 shows only arrows between primary and secondary media; Figure 1 does not clearly identify what these arrows represent (for example, erosion, runoff, groundwater-surface water interaction, etc.). Figure 1 should be revised to clearly identify the potential transport mechanisms. Alternatively, Section 2 could be revised to explain the various potential transport mechanisms.
2. **Section 2.1, Page 4, Paragraph 3.** Section 2.1 discusses potential manufactured gas plant- (MGP) related constituents and refers to Section 4.0 of the remedial investigation (RI) report. It would add clarity and ease of use for the reader if the list of medium-specific MGP-related constituents were provided as an Attachment to Revision 1.
3. **Section 2.3.1.2, Page 6.** Footnote 1 indicates that further assessment of a small area on the east bank near North Station “was not considered necessary,” due to its inaccessibility and small size (approximately 5 ft by 75 ft). Please specify what makes this area inaccessible; additionally, please highlight this portion of the site on a North Station overview map to provide a visual reference.
4. **Section 3.1.3, Page 9.** Four ambient surface water samples, and no duplicates, were collected for the North Station OU2. However, duplicate ambient surface water samples were collected for both Division Street OU2 and Willow Street OU2. Please clarify the lack of duplicate ambient surface water ambient samples obtained for North Station OU2.



5. **Section 4, Page 12, Paragraph 3.** This paragraph discusses the calculation of EPCs as the UCL of the arithmetic mean. As noted in General Comment 1, the maximum detected concentration should be used as the EPC for construction workers. Section 4 should be revised accordingly to clarify this point.
6. **Section 5.3.1 Page 34, Paragraph 2.** As noted in General Comment No. 6, the RAF stated that EPA guidance (EPA 2003) would be followed and an ESB Sum-TU would be calculated for each sediment sample as part of the screening process. As noted above, this was not done, and no explanation was provided to justify why the RAF was not followed. The approved RAF approach should be followed, or further justification should be provided to support this decision.
7. **Section 4.3, Pages 23 and 24.** Section 4.3 discusses uncertainties associated with the human health risk assessment results. The largest source of uncertainty in the baseline human health risk assessment process is probably the use of tap water RSLs to characterize potential recreational user and construction worker surface water-related risks and hazards. Section 4.3 should be revised to address this source of uncertainty, including the inclusion of a semi-quantitative analysis of the magnitude of this uncertainty (see General Comment 5).
8. **Section 6.1, Page 49, Paragraph 5.** Section 6.1 presents the summary and conclusions of the human health risk assessment. As noted in General Comment 2, COCs should be defined as chemicals contributing risks  $\geq 1\text{E-}06$  and/or hazard index greater than 1. Section 6.1 should be revised accordingly.
9. **Section 7, Pages 60 and 61.** Section 7 lists the references cited in the text. Page 11 includes the citation “EPA 2015.” A full reference for this citation is not included in Section 7. Section 7 should be revised to include full references for all sources cited in the report.

### **Specific Comments – Remedial Investigation**

1. **Section 3.7.2.1, Sediment Sampling Locations and Figure 7, Sediment Sampling Locations.** Figure 7 shows the following “ambient” sampling locations collected within the Willow Street OU2 boundary: ACR-1 (boring), ACR-1 (surface), SWA-1DVS/SWA1WHS, and SCR-01. While these samples were taken upstream of the Willow Street upland portion, OU1, they are still within the bounds of OU2 and should not be considered ambient. Please clarify. See Comment 2 below.

2. **Figure 8A and Figure 15A.** Sampling is notably absent in Willow Street OU2 boundary along the ~250-foot section north of samples PCA-1WHS and PCA-2HS, designated as WHS\_Upstream in Figure 15A. Please provide an explanation for the apparent absence of sampling in this area or clarify the location of samples noted in Comment 1 above.

If you have any questions regarding anything in this letter or require any additional information, please contact me at (217) 785-6309 or via email at [Christopher.M.Peters@illinois.gov](mailto:Christopher.M.Peters@illinois.gov).

Sincerely,



Chris M. Peters  
Remedial Project Manager  
Federal Site Remediation Section  
Bureau of Land